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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/614,791

07/09/2003

Kiyotoshi Noheji

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EXAMINER

SINGH, DALZID E

ART UNIT

PAPER NUMBER

2613

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/614,791	<b>Applicant(s)</b> NOHEJI, KIYOTOSHI	
	<b>Examiner</b> Dalzid Singh	<b>Art Unit</b> 2613	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 and 16-31 is/are allowed.
- 6) ☒ Claim(s) 10-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 10-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10 recites "the control by said first step is converged." It is unclear how the control is converged.

Claims 13 recites "the control by said first mean is converged." It is unclear how the control is converged.

***Allowable Subject Matter***

3. Claims 1-9 and 16-31 are allowed.
4. Claims 10 and 13 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.
5. The following is a statement of reasons for the indication of allowable subject matter:

Claim 1 is allowable because the prior art of record does not teach or fairly suggest a system comprising: a closed loop topology adapted to WDM signal light obtained by wavelength division multiplexing a plurality of optical signals; and

a plurality of nodes arranged along said closed loop topology; each of said nodes comprising:

a first optical amplifier for amplifying input signal light;

an optical demultiplexer for separating signal light output from said first optical amplifier into a plurality of optical signals;

an optical switch adapted to operate on a plurality of optical signals output from said optical demultiplexer;

an optical multiplexer for wavelength division multiplexing a plurality of optical signals output from said optical switch;

a second optical amplifier for amplifying signal light output from said optical multiplexer; and

a control unit for controlling said first and second optical amplifiers; said control unit comprising:

first means for transmitting the number of channels of WDM signal light to be output from the corresponding node to the node immediately downstream of the corresponding node;

second means for controlling said first optical amplifier so that the output from said first optical amplifier becomes constant, according to the number of channels of WDM signal light received from the node immediately upstream of the corresponding node; and

third means for controlling said optical switch so that the optical signals other than one or more optical signals added to the corresponding node are not output from the corresponding node until the control by said second means is converged.

Claim 4 is allowable because the prior art of record does not teach or fairly suggest a closed loop topology adapted to WDM signal light obtained by wavelength division multiplexing a plurality of optical signals; and a plurality of nodes arranged along said closed loop topology; each of said nodes comprising: a first optical amplifier for amplifying input signal light; an optical demultiplexer for separating signal light output from said first optical amplifier into a plurality of optical signals; an optical switch adapted to operate on a plurality of optical signals output from said optical demultiplexer; an optical multiplexer for wavelength division multiplexing a plurality of optical signals output from said optical switch; a second optical amplifier for amplifying signal light output from said optical multiplexer; and a control unit for controlling said first and second optical amplifiers; said control unit comprising: first means for transmitting the number of channels of WDM signal light to be output from the corresponding node to the node immediately downstream of the corresponding node; second means for controlling said first optical amplifier so that the output from said first optical amplifier becomes constant, according to the number of channels of WDM signal light received from the node immediately upstream of the corresponding node; third means for stopping the control by said second means when the number of channels received is changed; and fourth means for restarting the control by said second means

after different time periods in said plurality of nodes have elapsed from the time of stopping by said third means.

Claim 16 is allowable because the prior art of record does not teach or fairly suggest a method comprising the steps of: providing a closed loop topology using an optical fiber applicable to WDM signal light obtained by wavelength division multiplexing a plurality of optical signals; providing a plurality of nodes each including an optical amplifier along said closed loop topology; and controlling each of said nodes; said controlling step comprising: a first step of controlling said optical amplifier so that the output from said optical amplifier becomes constant, according to the number of channels of WDM signal light received from the node immediately upstream of the corresponding node; a second step of stopping the control by said first step when the number of channels received is changed; and a third step of restarting the control by said first step after different time periods in said plurality of nodes have elapsed from the time of stopping by said second step.

Claim 22 is allowable because the prior art of record does not teach or fairly suggest a system comprising: a closed loop topology using an optical fiber applicable to WDM signal light obtained by wavelength division multiplexing a plurality of optical signals; and a plurality of nodes arranged along said closed loop topology, each of said nodes including an optical amplifier; each of said nodes comprising: first means for controlling said optical amplifier so that the output from said optical amplifier becomes constant, according to the number of channels of WDM signal light received from the

node immediately upstream of the corresponding node; second means for stopping the control by said first means when the number of channels received is changed; and third means for restarting the control by said first means after different time periods in said plurality of nodes have elapsed from the time of stopping by said second means.

Claim 28 is allowable because the prior art of record does not teach or fairly suggest an optical transmission system comprising a transmission line and a plurality of nodes arranged along said transmission line for adding and dropping one or more optical signals of WDM signal light; each of said nodes having an optical amplifier; said optical amplifier being controlled so that the output from said optical amplifier becomes constant, according to the number of channels of WDM signal light received from the node immediately upstream of the corresponding node; the optical signals received from said immediately upstream node being not output to the node immediately downstream of the corresponding node until the output from said optical amplifier is converged to a constant level.

Claim 29 is allowable because the prior art of record does not teach or fairly suggest an optical transmission system comprising a transmission line and a plurality of nodes arranged along said transmission line for adding and dropping one or more optical signals of WDM signal light; each of said nodes having an optical amplifier; said optical amplifier being controlled so that the output from said optical amplifier becomes constant, according to the number of channels of WDM signal light received from the node immediately upstream of the corresponding node; the control of said optical

amplifier being stopped when the number of channels of WDM signal light received is changed; the control of said optical amplifier being restarted after a predetermined time period has elapsed from the time of stopping the control of said optical amplifier.

Claim 30 is allowable because the prior art of record does not teach or fairly suggest an optical transmission system for adding and dropping one or more optical signals of WDM signal light, said optical transmission system being connected to an optical transmission line; said optical transmission system comprising: a first optical amplifier for amplifying light from said optical transmission line; an optical demultiplexer for separating an output from said first optical amplifier into a plurality of optical signals having different wavelengths; an optical switch for inputting said optical signals from said optical demultiplexer and said one or more optical signals added to switch among through, add, and drop paths; a second optical amplifier for amplifying an output from said optical switch; and a control unit for controlling said first optical amplifier so that the output from said first optical amplifier becomes constant, according to the number of channels of WDM signal light transmitted by said optical transmission line, and interrupting said input optical signals other than said one or more optical signals added until the output from said first optical amplifier is converged to a constant level.

Claim 31 is allowable because the prior art of record does not teach or fairly suggest an optical transmission system for adding and dropping one or more optical signals of WDM signal light, said optical transmission system being connected to an optical transmission line; said optical transmission system comprising: a first optical



amplifier for amplifying light from said optical transmission line; an optical demultiplexer for separating an output from said first optical amplifier into a plurality of optical signals having different wavelengths; an optical switch for inputting said optical signals from said optical demultiplexer and said one or more optical signals added to switch among through, add, and drop paths; a second optical amplifier for amplifying an output from said optical switch; and a control unit for controlling said first optical amplifier so that the output from said first optical amplifier becomes constant, according to the number of channels of WDM signal light transmitted by said optical transmission line, stopping the control of said first optical amplifier when the number of channels of WDM signal light transmitted by said optical transmission line is changed, and restarting the control of said first optical amplifier after a predetermined time period has elapsed from the time of stopping the control of said first optical amplifier.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Arrecco et al (US Patent No. 6,456,406) is cited to show transparent optical self-healing-ring communication network.

Graves et al (US Pub. No. 2001/0050790) is cited to show photonic network node.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272--3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS  
August 7, 2006

*Dalzid Singh*